



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,354	09/03/2003	Shuji Nakagawa	03533/LH	1561
1933	7590	08/02/2005	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC 220 5TH AVE FL 16 NEW YORK, NY 10001-7708			LAVARIAS, ARNEL C	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/655,354	Applicant(s) NAKAGAWA, SHUJI	
	Examiner Arnel C. Lavarias	Art Unit 2872	

(30)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 9-14 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5 is/are allowed.
- 6) ☒ Claim(s) 9-14 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The replacement drawings for Figure 4 were received on 5/23/05. These drawings are acceptable.

Response to Amendment

2. The amendments to the specification and abstract of the disclosure in the submission dated 5/23/05 are acknowledged and accepted. In view of these amendments, the objections to the specification in Sections 7-8 of the Office Action dated 2/22/05 are respectfully withdrawn.
3. The amendments to Claims 1-4, 9-14 in the submission dated 5/23/05 are acknowledged and accepted.
4. The cancellation of Claims 6-8, 15-22 in the submission dated 5/23/05 is acknowledged and accepted. In view of the amendments made to the claims, the objections to the claims in Section 9 of the Office Action dated 2/22/05 are respectfully withdrawn. Additionally, the rejections of Claims 18-19 in Sections 11, 16-18 of the Office Action dated 2/22/05 are respectfully withdrawn.
5. The addition of Claim 23 in the submission dated 5/23/05 is acknowledged and accepted.

Response to Arguments

Art Unit: 2872

6. The Applicant's arguments with respect to Claims 9-14 have been considered but are moot in view of the new ground(s) of rejection.
7. Claims 9-14, 23 are now rejected as follows.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 9, 12, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. (WO 97/20198), of record, in view of Wilhelm et al. (U.S. Patent No. 5671288), of record, and Recht (U.S. Patent No. 5625705).

Douglass et al. discloses a microscopic image capture apparatus and method (See for example Figures 1-5), the apparatus comprising a low-powered objective lens (See 44 in Figure 2; Pages 10-12); a high-powered objective lens (See 44 in Figure 2; Pages 10-12); a switch device for switching between the low-powered objective lens and the high-powered objective lens (See 44 in Figure 2); a stage loaded with a sample storage device for storing a sample (See 38 in Figure 2); an illumination device for illuminating the sample (See 48 in Figure 2); an image information obtaining device for obtaining image information, such as a low-magnification sample image, about the sample by capturing a sample image, for example by using the low-powered objective lens (See 42, 25 in Figure 2; Pages 10-12); a stage drive mechanism for transferring the stage on a plane orthogonal

to an optical observation axis of a microscope on which the low-powered objective lens and the high-powered objective lens are mounted (See 37, 38 in Figure 2; 120, 122 in Figure 3); a high-magnification field section device for dividing a low-magnification image of the sample obtained using the low-powered objective lens (See 23, 25, 31, 114, 116, 118, 120, 122, 124 in Figures 2-3; Figures 10-12; Pages 10-12); a sample image presence check device for checking each of the high-magnification field sections to determine whether sample image information of the sample is present; a high-magnification image capture device for obtaining a high-magnification image by the high-powered objective lens from the high-magnification field sections (See 42, 25 in Figure 2; Pages 10-12); and an image information generation device (See 23, 25, 27, 31 in Figure 2; 102, 104 in Figure 3; Pages 2, 6-7, 10-12) for generating a high-magnification composite image having a same field (i.e. all of the high-magnification images mosaicked together from a particular position are taken from the same field of the low-magnification image at the same position) as the low-magnification image by combining the obtained high-magnification images in positions corresponding to positions of the corresponding high-magnification field sections. It is noted that the microscopic image capturing method steps follow from the above apparatus, and that Douglass et al. additionally discloses the steps of dividing an entire area of a slide loaded with the sample into first field size sections corresponding to a low powered objective lens, and obtaining a low magnification image of the slide for each of the first field size sections using the low powered objective (See Figure 12; Pages 10-12). Douglass et al. lacks dividing the low magnification image of the sample into high-magnification field

sections each corresponding to a field of the high-powered objective lens in the high magnification field section device, and the high-magnification image capture device obtaining high-magnification image only for each of the high-magnification field sections determined to contain the sample image information. However, Wilhelm et al. teaches a method and apparatus for assessing specimens on a microscope slide (See for example Abstract), wherein captured low magnification fields of view are divided into high magnification field sections which correspond to the field of view of a high magnification objective lens (See for example Figures 4-5; col. 5, line 66-col. 6, line 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the high magnification field section device apparatus and method of Douglass et al., further divide the low magnification image of the sample into high-magnification field sections each corresponding to a field of the high-powered objective lens in the high magnification field section device, as taught by Wilhelm et al., to simplify identifying, locating, and scanning of the various regions of the sample. The combined teachings of Douglass et al. and Wilhelm et al. lacks the high-magnification image capture device obtaining high-magnification image only for each of the high-magnification field sections determined to contain the sample image information. However, Recht teaches an automated microscope system (See for example Figures 1-2) used to detect, identify, and classify objects within a specimen. In particular, Recht discusses that the microscope performs three scans, one using a low resolution objective, and two using a high resolution objective. In performing the high resolution scans, only those areas of the slide found during the low resolution scan to contain sample material

Art Unit: 2872

are scanned (See col. 3, line 29-col. 4, line 16; col. 6, line 20-col. 7, line 20). Thus, it would have been obvious to one having ordinary skill in the art to have the high-magnification image capture device of the apparatus of Douglass et al. and Wilhelm et al. obtain high-magnification image only for each of the high-magnification field sections determined to contain the sample image information, as taught by Recht, for the purpose of greatly reducing the scanning and processing time required to capture an image of the sample on the slide.

10. Claims 10, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. in view of Wilhelm et al. and Recht, as applied to Claims 9, 12 above, and further in view of Perz et al. (U.S. Patent Application Publication US 2004/0202357 A1).

Douglass et al. in view of Wilhelm et al. and Recht discloses the invention as set forth above in Claims 9, 12, except for the information generation device including a dummy data assignment device for assigning dummy data predetermined to be similar to a background of a sample image as image information for each of the high-magnification size sections not captured by the high-magnification image capture device. However, Perz et al. teaches a method of acquiring image data from a microscope system (See for example Figures 1-4), wherein particular values (i.e. a silhouette map) are assigned (See 140, 150 in Figure 1) to those field of view regions to designate whether the data in those regions are of interest or not, i.e. '1' corresponds to specimen content of interest and '0' corresponds to specimen content not of interest or no specimen content (See for example Figures 7-11; paragraphs 0034-0036, 0061-0065, 69-73). Further, although Perz et al. does not specifically disclose dummy data similar to a background of a sample image

being assigned to the second field size section for which the high-magnification image is not obtained, one of ordinary skill in the art would have known to select any particular value to be assigned to regions that are and are not of interest, such as the '1' and '0' values disclosed by Perz et al., or even values which may be similar to image or background data, so long as these values may be correlated with regions that are and are not of interest to the operator. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the method of Wilhelm et al. in view of Douglass et al. and Recht, further include dummy data similar to a background of a sample image be assigned to the second field size section for which the high-magnification image is not obtained, as taught by Perz et al., to prevent unwanted scanning of non-interesting regions of the sample, thus reducing scanning time and memory storage requirements.

11. Claim 11, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglass et al. in view of Wilhelm et al. and Recht as applied to Claims 9, 12, above, and further in view of Kuan et al. (U.S. Patent No. 5757954), of record.

Douglass et al. in view of Wilhelm et al. and Recht discloses the invention as set forth above in Claim 9, 12, except for an arbitrary information generation device that generates image information having at least one of a different magnification, a different position, and a different area, based on the high-magnification composite image generated by the image information generation device. However, Kuan et al. teaches a conventional method for assessing samples on a microscope slide for objects of interest in the recorded images (See Abstract; Figures 2-3). In particular, multiple high magnification field of

view images of a sample location are recorded. An analysis is performed to determine the content in each image, and the positions for each of those images that indicate little to no content, are too dense, or have an air bubble, are recorded and eliminated from further processing (See 502, 536 in Figure 1A; 562, 550 in Figure 1B; col. 4, line 28-col. 5, line 25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the apparatus of Douglass et al. in view of Wilhelm et al. and Recht further include an arbitrary information generation device that generates image information having at least one of a different magnification, a different position, and a different area, based on the high-magnification composite image generated by the image information generation device, as taught by Kuan et al., for the purpose of reducing scanning time and storage requirements for the scanning operation of the microscope.

Allowable Subject Matter

12. Claims 1-5 are allowed.

13. The following is a statement of reasons for the indication of allowable subject matter:

Claim 1 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest a microscopic image capture apparatus for capturing a sample image of a sample, as generally set forth in Claim 1, the apparatus including, in combination, a separate low-magnification dividing device and a high-magnification dividing device; a separate image information obtaining device and a high-magnification image capture device; a sample image discrimination device; and an image

information generation device for generating high-magnification composite image information about the sample on the slide glass by generating a high-magnification image such that a relative position between (i) an area of the high-magnification image corresponding to the high-magnification image information obtained by the high-magnification image capture device and (ii) an area of the high-magnification image corresponding to each said high-magnification size section discriminated as a sample image exclusion section and not captured by the high-magnification image capture device, can be correctly maintained. Claims 2-5 are dependent on Claim 1, and hence are allowable for at least the same reasons Claim 1 is allowable.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

Art Unit: 2872

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

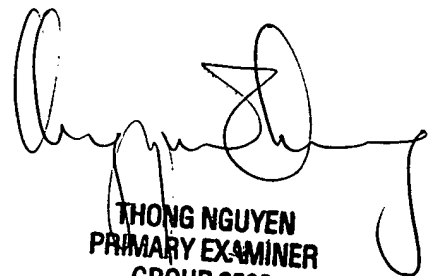
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
7/28/05



THONG NGUYEN
PRIMARY EXAMINER
GROUP 2800



*Drawing changes
Approved
lee
7/27/05*

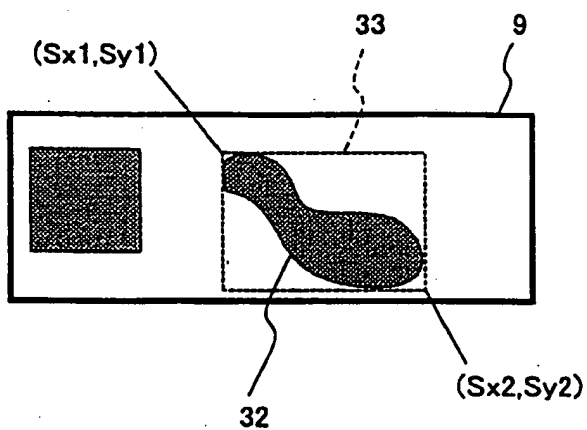


FIG. 4